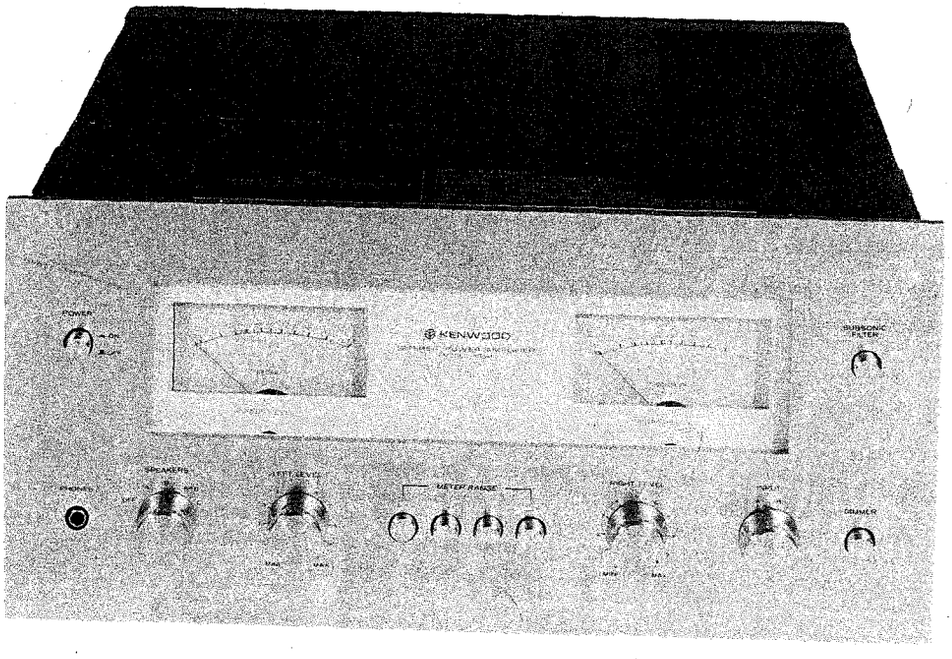
KENWOOD

HI/FI STEREO COMPONENTS

SERVICE MANUAL

MODEL-700M



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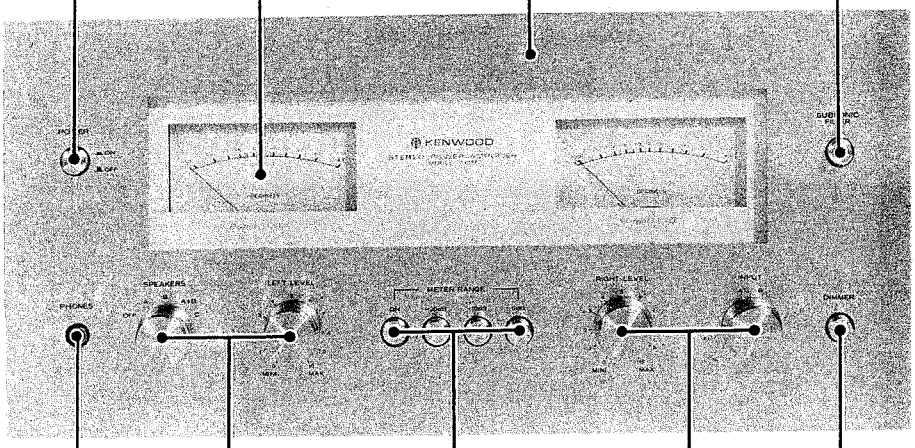
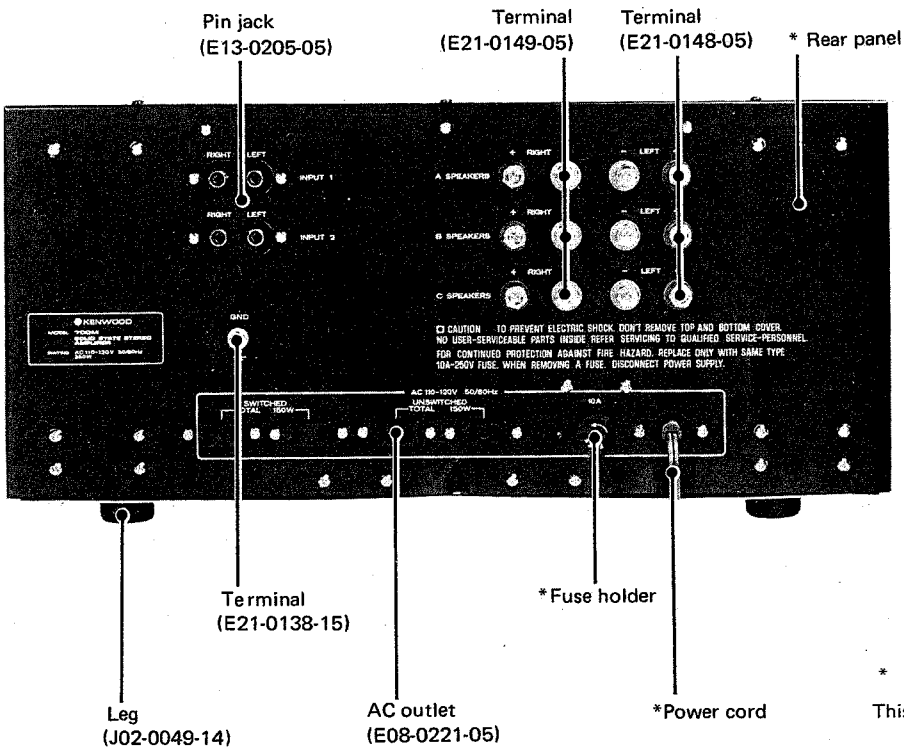
Note :
The products are subject to modification in components and circuits in different countries and regions. This is because each product must be used under the best condition. This manual provides information of modification based on the standard in the U. S., for the convenience of ordering associated components and parts. We employ the following abbreviations of respective countries:

U.S.A. → **K**,	Canada → **P**,	PX → **U**,	Australia → **X**,
Europe → **W**,	England → **T**,	Scandinavia → **L**,	South Africa → **S**,
Other areas → **M**			

EXTERNAL VIEW

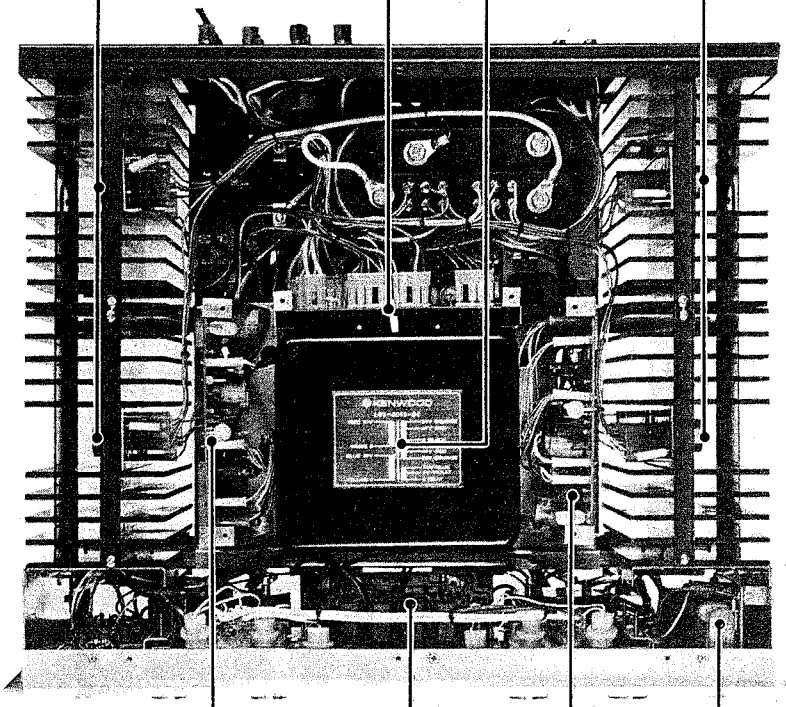




* Refer to parts list.

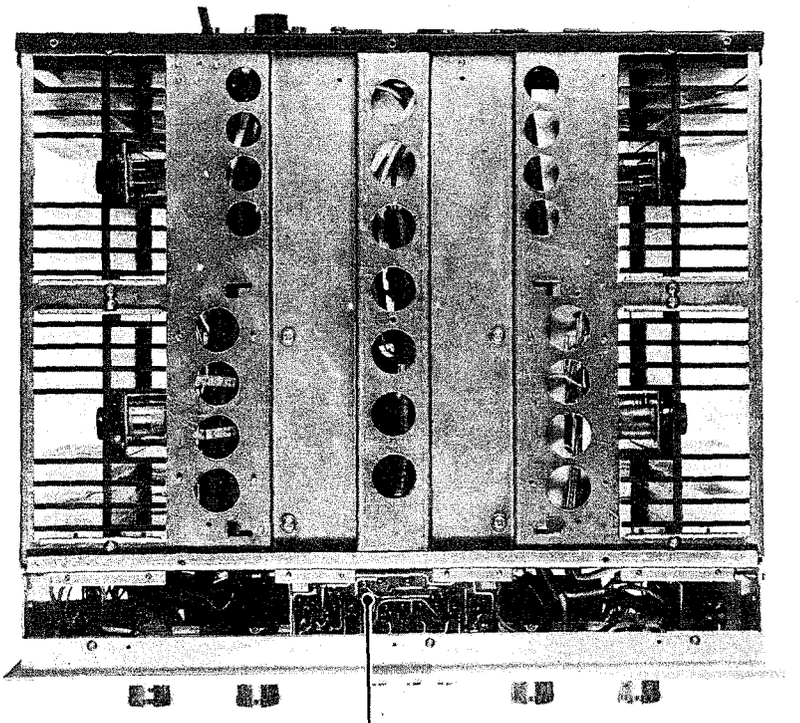
This unit is K type.

TOP VIEW



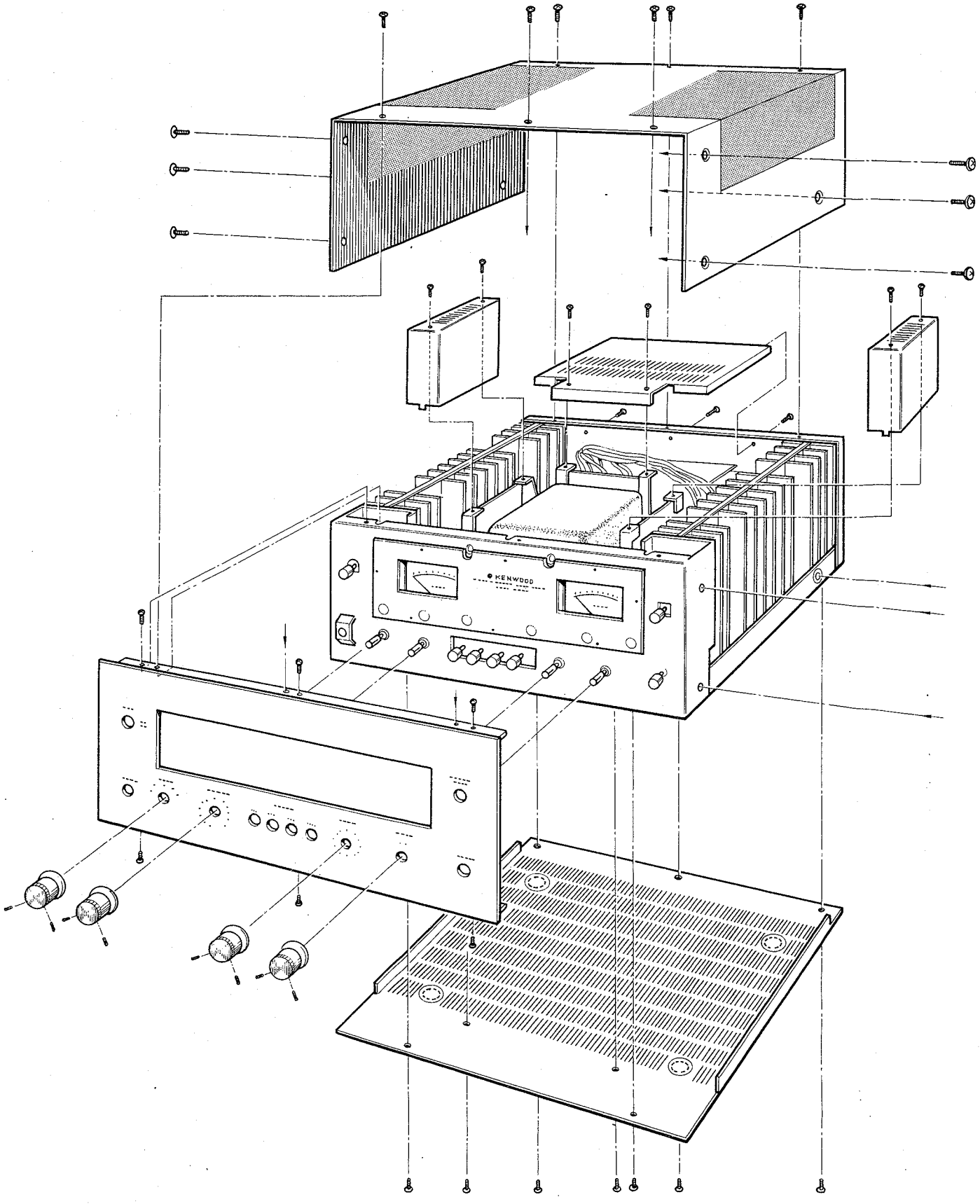
* Refer to parts list.

BOTTOM VIEW

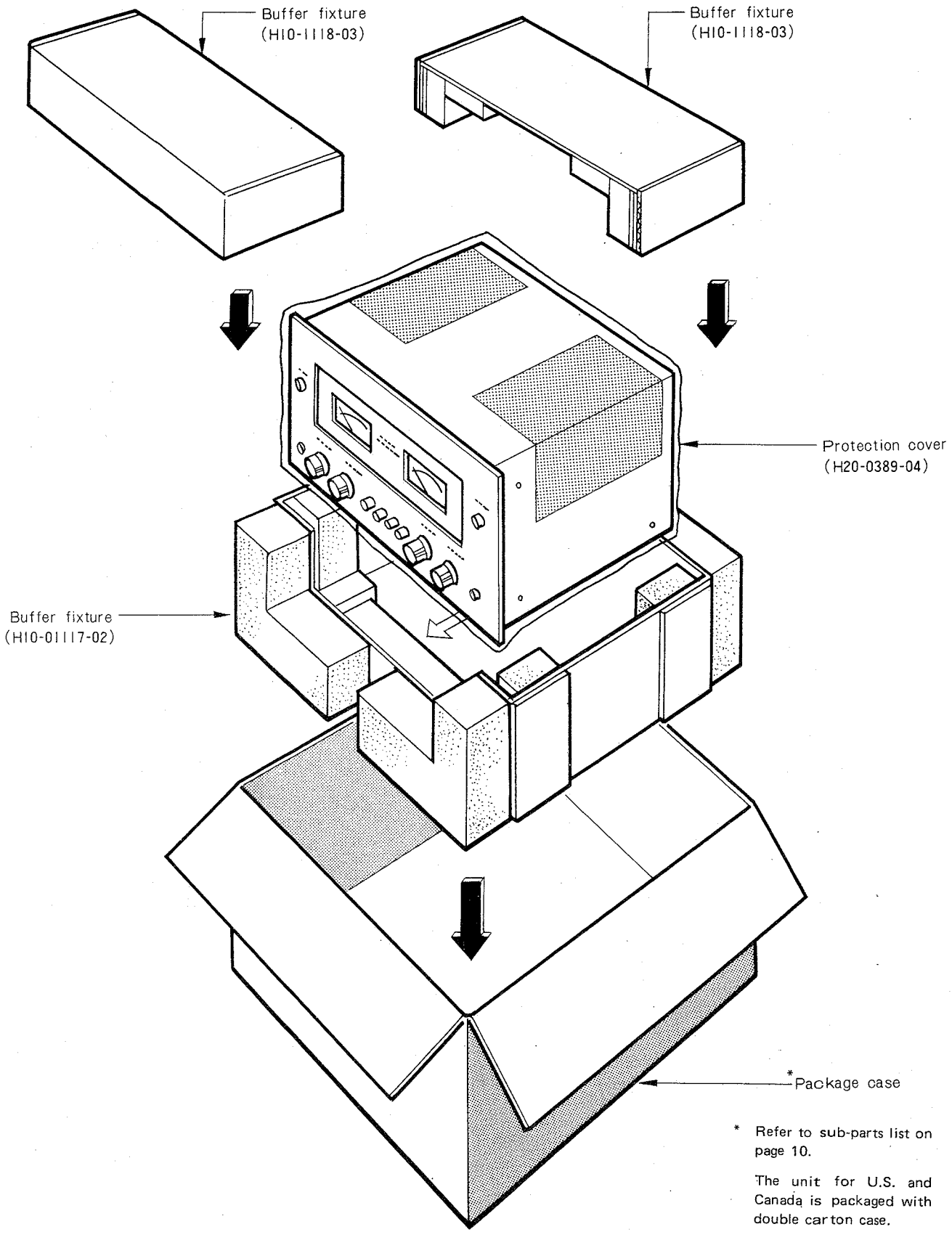


Meter
(X13-1720-10)

DISASSEMBLY



PACKING



* Refer to sub-parts list on page 10.

The unit for U.S. and Canada is packaged with double carton case.

PARTS LIST

Ref. No.	Parts No.	Description	Remarks
		CAPACITOR	
C307	C90-0145-05	Polyester 0.01μF ±20%	
		RESISTOR	
R101~112	R92-0115-05	Metal film 0.47Ω ±10% 3W	
R113, 114	RN14AB3A821K	Metal film 820Ω ±10% 1W	
R302, 303	PD14BY2E560K	Carbon 56Ω ±10% 1/4W	
		SEMICONDUCTOR	
Q1~6		Transistor 2SD287 (1)	
Q7~12		Transistor 2SB539 (1)	
D1, 2		Varistor STV-3H	
		POTENTIOMETER	
VR1, 2	R16-4005-05	Potentiometer 50kΩ (B) 24φ	
		SWITCH	
S2	S59-2026-05	Pushbutton (DIMMER)	
S5	S10-1105-05	Rotary (INPUT)	
S6	S59-2028-05	Rotary (SPEAKERS)	
		MISCELLANEOUS	
–	A01-0239-02	Case	
–	A10-0385-01	Chassis	
–	A13-0087-02	Frame	
–	A20-0763-02	Panel assembly	
–	A20-0765-02	Panel	
–	A22-0149-12	Sub panel	
–	A40-0128-03	Bottom plate	
–	B03-0070-03	Meter dress panel	
–	B07-0124-14	Pushbutton switch ring x 7	
–	B10-0145-03	Front glass	
–	B19-0161-04	Color board x 2	
–	B30-0069-05	Pilot lamp (8V, 0.3A) x 6	
–	B31-0185-05	Meter x 2	
–	B40-0969-03	Spec. name plate	
–	B41-0184-04	Fuse sticker	
–	B42-0009-04	Passed sticker	
–	B50-1147-00	Instruction manual	
–	B52-0160-00	Schematic diagram	
–	E02-0209-05	Transistor socket x 12	
–	E08-0221-05	AC outlet x 4	
–	E11-0002-05	Phone jack	
–	E13-0205-05	Pin jack (2P) x 2	
–	E19-0302-05	Pin assembly (3P) x 6	
–	E19-0401-05	Pin assembly (4P) x 4	
–	E21-0138-15	Terminal (GND)	
–	E21-0148-05	Terminal (Speaker, red) x 6	
–	E21-0149-05	Terminal (Speaker, black) x 6	
–	E30-0272-05	Wire harness (BL-3)	
–	E30-0273-05	Wire harness (BR-3)	
–	E30-0278-05	Wire harness (BR-7)	
–	E30-0279-05	Wire harness (A-3)	
–	E30-0280-15	Wire harness (A-4)	

PARTS LIST

Ref. No.	Parts No.	Description	Remarks
–	E30-0281-05	Wire harness (A-8)	
–	E30-0282-05	Wire harness (A-9)	
–	E30-0283-05	Wire harness (A-10)	
–	E30-0284-05	Wire harness (E-1)	
–	E30-0296-05	Wire harness (E-2)	
–	E30-0297-05	Wire harness (F-2)	
–	F01-0181-03	Heat sink x 4	
–	F07-0332-03	PC unit cover x 2	
–	F07-0333-02	Protection cover	
–	F15-0172-04	Dust sheet	
–	F20-0066-05	Mica plate x 12	
–	F20-0092-04	Insulator x 4	
–	F31-0099-04	Reinforce hardware (leg) x 4	
–	J02-0049-14	Leg x 4	
–	J19-0306-05	Lead holder x 6	
–	J19-0413-03	Pilot lamp hardware	
–	J19-0414-04	Front glass stopper	
–	J20-0278-03	Mounting plate (L)	
–	J20-0279-03	Mounting plate (R)	
–	J21-1232-04	Heat sink mounting hardware (A) x 2	
–	J21-1233-04	Heat sink mounting hardware (B) x 2	
–	J21-1240-04	Resistor mounting hardware	
–	J21-1243-04	Bushing mounting hardware	
–	J25-0045-14	PC board x 4	
–	K29-0133-04	Knob (SPEAKERS, LEVEL x 2, INPUT) x 4	
–	K29-0193-14	Knob (Pushbutton) x 6	
–	K29-0194-14	Knob (DIMMER)	
–	N08-0014-04	Dress screw x 6	
–	R90-0097-05	Spark killer	
–	X07-1260-00	Main amp unit x 2	
–	X12-1060-10	Filter unit	
–	X13-1720-10	Meter unit	
–	X90-1080-10	Power supply assembly	

POWER SUPPLY ASSY (X90-1080-10) PARTS LIST

Ref. No.	Parts No.	Description	Remarks
		CAPACITOR	
C301, 302	C90-0209-05	Electrolytic 22000μF 80WV	
C303, 304	C90-0210-05	Electrolytic 1000μF 80WV	
C305, 306,	CP02B2J103M	Oil filled 0.01μF ±20%	
		SEMICONDUCTOR	
D301		Diode12B20	
		MISCELLANEOUS	
–	E19-0302-05	Pin assembly (3P)	
–	E30-0274-05	Wire harness (BL-4)	
–	E30-0275-05	Wire harness (BR-4)	
–	E30-0276-15	Wire harness (BL-5)	
–	E30-0277-05	Wire harness (BR-5)	
–	E30-0285-15	Wire harness (BL-1)	
–	E30-0286-05	Wire harness (BR-1)	
–	E30-0287-15	Wire harness (BL-6)	
–	E30-0288-05	Wire harness (BR-6)	
–	E30-0294-05	Wire harness (A-11)	
–	E30-0295-05	Wire harness (A-1)	
–	J20-0280-02	Mounting plate	
–	J25-1046-14	PC board (High B)	
–	J25-1047-14	PC board (Low B)	

SUB PARTS LIST

Ref. No.	U. S. A. (K)	Canada (P)	PX (U)	Australia (X)	Europe (W)	England (T)	South Africa (S)	Other area	Description
–	A23-0464-12	A23-0464-12	A23-0466-02	–	A23-0465-02	–	–	A23-0466-02	Rear panel
–	–	B40-0918-04	B40-0917-04	–	B40-0920-04	–	–	B40-0919-04	Model name plate
–	–	–	–	–	B42-0024-04	–	–	–	SEV sticker
–	–	B41-0200-04	–	–	–	–	–	–	Fuse sticker
–	B42-0358-04x2	B42-0358-04	–	–	–	–	–	–	UL sticker
–	B42-0439-04	B42-0439-04	–	–	–	–	–	–	Caution sticker
–	B46-0002-00	B46-0021-00	B46-0022-00	–	–	–	–	–	Warranty card
–	–	–	B46-0023-00	–	–	–	–	–	Warranty card
–	B58-0043-00	B58-0043-00	–	–	–	–	–	–	Carton case caution card
–	–	–	B58-0139-00	–	B58-0156-00	–	–	B58-0003-00	Power supply caution card
–	–	–	B58-0146-00	–	B58-0108-00	–	–	B58-0108-00	Spare fuse caution card
–	–	–	B58-0144-00	–	B58-0157-00	–	–	B58-0101-00	Power voltage selector caution card
–	–	–	B59-0018-00	–	–	–	–	–	KENWOOD service stations' list
–	–	–	D32-0069-04	–	D32-0068-14	–	–	D32-0069-04	Switch stopper
–	E30-0290-05	E30-0290-05	E30-0291-05	–	E30-0292-05	–	–	E30-0291-05	Power cord
–	–	–	–	–	E30-0298-05	–	–	–	Wire harness (A-12)
–	F05-1032-05	F05-1032-05	F05-1035-05	–	F05-1034-05	–	–	F05-1035-05	Fuse (10A)
–	–	F05-1036-05	–	–	–	–	–	–	Fuse (10A)
–	–	–	F05-5022-05	–	F05-5025-05	–	–	F05-5022-05	Fuse (5A)
–	F05-2021-05	F05-2021-05	F05-2021-05	–	F05-2029-05	–	–	F05-2021-05	Fuse (2A)
–	–	–	–	–	F07-0334-04	–	–	–	Switch cover
–	L03-0093-05	L03-0093-05	L03-0093-05	–	L06-0029-05		–	L03-0093-05	Power transformer
–	J13-0033-15	J13-0033-15	J13-0033-15	–	J13-0031-05	–	–	J13-0033-15	Fuse holder (POWER)
–	J13-0034-05	J13-0034-05	J13-0034-05	–	J13-0027-05	–	–	J13-0034-05	Fuse holder
R301	R92-0134-05	R92-0134-05	R92-0134-05	–	R92-0134-05x2	–	–	R92-0134-05	Wire wound 4Ω ±10% 10W
–	–	–	S31-2034-05	–	S31-2034-05x2	–	–	S31-2034-05	Slide switch (Power voltage selector)
S1	S59-2027-05	S59-2027-05	S59-2027-05	–	S59-2030-05	–	–	S59-2027-05	Pushbutton switch (POWER)
–	X13-1710-10	X13-1710-10	X13-1710-10	–	X13-1710-11	–	–	X13-1710-10	Protection unit

MAIN AMP(X07-1260-00) PARTS LIST

Ref. No.	Parts No.	Description				Remarks
		CAPACITOR				
Ce1	C90-0211-05	Polyester	1μF	200WV		
Ce2	CC45SL1H330K	Ceramic	33pF	±10%		
Ce3	CC45SL1H270K	Ceramic	27pF	±10%		
Ce4	CC45SL1H101K	Ceramic	100pF	±10%		
Ce5	CE04W1E221	Electrolytic	220μF	25WV		
Ce6	CC45SL1H100K	Ceramic	10pF	±10%		
Ce7	CE04W1A470	Electrolytic	47μF	10WV		
Ce8	CE04W1H100	Electrolytic	10μF	50WV		
Ce9	CC45SL1H470K	Ceramic	47pF	±10%		
Ce10	CE04W1A101	Electrolytic	100μF	10WV		
Ce11	CE04W2A470	Electrolytic	47μF	100WV		
Ce12	CE04W1E221	Electrolytic	220μF	25WV		
Ce13	CQ93M1H102K	Mylar	0.001μF	±10%		
Ce14	CE04W1A470(NP)	Electrolytic	47μF	10WV		
		RESISTOR				
Re1	PD14BY2E154J	Carbon	150kΩ	±5%	1/4W	
Re2	PD14BY2E103J	Carbon	10kΩ	±5%	1/4W	
Re3	PD14BY2E683J	Carbon	68kΩ	±5%	1/4W	
Re4	PD14BY2E273J	Carbon	27kΩ	±5%	1/4W	
Re5	PD14BY2E562J	Carbon	5.6kΩ	±5%	1/4W	
Re6	RN14AB3A562JB	Metal film	5.6kΩ	±5%	1W	
Re7	PD14BY2E152J	Carbon	1.5kΩ	±5%	1/4W	
Re8	PD14BY2E104J	Carbon	100kΩ	±5%	1/4W	
Re9	PD14BY2E683J	Carbon	68kΩ	±5%	1/4W	
Re10	PD14BY2E102J	Carbon	1kΩ	±5%	1/4W	
Re11	PD14BY2E123J	Carbon	12kΩ	±5%	1/4W	
Re12	PD14BY2E153J	Carbon	15kΩ	±5%	1/4W	
Re13	PD14BY2E560J	Carbon	56Ω	±5%	1/4W	
Re14	PD14BY2E270J	Carbon	27Ω	±5%	1/4W	
Re15	PD14BY2E151JB	Carbon	150Ω	±5%	1/4W	
Re16	RN14AB3A562JB	Metal film	5.6kΩ	±5%	1W	
Re17, 18	PD14BY2E223J	Carbon	22kΩ	±5%	1/4W	
Re19	PD14BY2E471JB	Carbon	470Ω	±5%	1/4W	
Re20	PD14BY2E102J	Carbon	1kΩ	±5%	1/4W	
Re21, 22	PD14BY2E331JB	Carbon	330Ω	±5%	1/4W	
Re23	PD14BY2E102J	Carbon	1kΩ	±5%	1/4W	
Re24	PD14BY2E471JB	Carbon	470Ω	±5%	1/4W	
Re25, 26	RN14AB3A151JB	Metal film	150Ω	±5%	1W	
Re27, 28	RN14AB3A6R8JB	Metal film	6.8Ω	±5%	1W	
		SEMICONDUCTOR				
Qe1, 2		Transistor	2SA620WL5 (H)			
Qe3, 4		Transistor	2SC1452 (G) or (B)			
Qe5		Transistor	2SA733 (Q) or (R)			
Qe6, 7		Transistor	2SC945 (Q) or (R)			
Qe8		Transistor	2SA733 (Q) or (R)			
Qe9		Transistor	2SD381 (1) L or M			
Qe10		Transistor	2SB536 (1) L or M			
Qe11		Transistor	2SD381 (1) L or M			
Qe12		Transistor	2SB536 (1) L or M			
De1		Zener diode	YZ-140			
De2		Diode	1S2076			
De3, 4		Varistor	STV-3H (Y)			
De5		Zener diode	YZ-140			
De6, 7		Diode	1S2076			

MAIN AMP(X07-1260-00)PARTS LIST

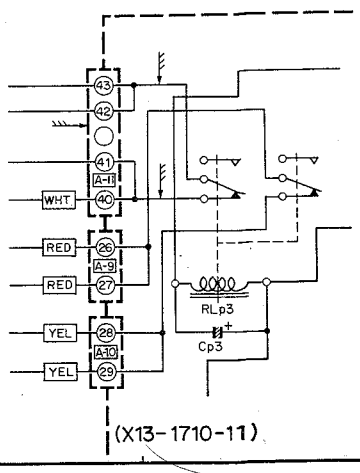
Ref. No.	Parts No.	Description	Remarks
		POTENTIOMETER	
VRe1	R12-0050-05	PC trimmer 470Ω (B)	
		MISCELLANEOUS	
–	E19-0302-05	Pin assembly (3P) x 6	
–	E19-0401-05	Pin assembly (4P) x 6	
–	F01-0180-04	Heat sink x 2	
–	J21-1234-04	PC board mounting hardware (A) (L)	
–	J21-1235-04	PC board mounting hardware (A) (R)	

FILTER(X12-1060-10)PARTS LIST

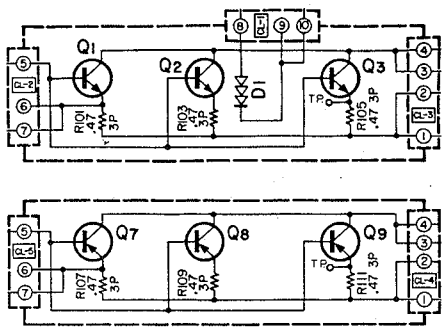
Ref. No.	Parts No.	Description				Remarks
		CAPACITOR				
Cs1 ~ 4	CQ93M1H224K	Mylar	0.22μF	±20%		
Cs5, 6	CQ93M2E105M	Mylar	1μF	±20%		
Cs7, 8	CQ93M2E225M	Mylar	2.2μF	±20%		
		RESISTOR				
Rs1, 2	PD14BY2E274J	Carbon	270kΩ	±5%	1/4W	
Rs3, 4	PD14BY2E273J	Carbon	27kΩ	±5%	1/4W	
Rs5, 6	PD14BY2E104J	Carbon	100kΩ	±5%	1/4W	
Rs7, 8	PD14BY2E184J	Carbon	180kΩ	±5%	1/4W	
Rs9, 10	PD14BY2E222J	Carbon	2.2kΩ	±5%	1/4W	
Rs11, 12	PD14BY2E562J	Carbon	5.6kΩ	±5%	1/4W	
		SEMICONDUCTOR				
Qs1, 2		Transistor 2SA620WL (5) or (6)				
		SWITCH				
S4	S40-2045-05	Pushbutton (SUBSONIC FILTER)				
		MISCELLANEOUS				
–	E19-0302-05	Mini-connector (3P)				
–	E19-0401-05	Mini-connector (4P)				
–	J21-1241-14	PC board mounting hardware				

PROTECTION(X13-1710-10)PARTS LIST

Ref. No.	Parts No.	Description				Remarks
		CAPACITOR				
Cp1, 2	CK45E2H103P	Ceramic	0.01μF	+100%, −0%		
Cp3	C90-0208-05	Electrolytic	470μF	63WV		
Cp4, 5	CQ93M2D104M	Mylar	0.1μF	±20%		
Cp6	CE04W1A101(NP)	Electrolytic	100μF	10WV		
Cp7	CE04W1H100MBR	Electrolytic	10μF	50WV		
		RESISTOR				
Rp1	RN14AB3D122KB	Metal film	1.2kΩ	±10%	2W	
Rp3	RN14AB3F4R7KB	Metal film	4.7Ω	±10%	3W	
Rp4	PD14BY2E103J	Carbon	10kΩ	±5%	1/4W	
Rp7	RN14AB3F4R7KB	Metal film	4.7Ω	±10%	3W	
Rp8	RN14AB3D561KB	Metal film	560Ω	±10%	2W	
Rp9, 10	PD14BY2E103J	Carbon	10kΩ	±5%	1/4W	
Rp11	PD14BY2E224J	Carbon	220kΩ	±5%	1/4W	
Rp12	PD14BY2E222J	Carbon	2.2kΩ	±5%	1/4W	
Rp13	PD14BY2E224J	Carbon	220kΩ	±5%	1/4W	
Rp14	PD14BY2E153J	Carbon	15kΩ	±5%	1/4W	
Rp15	PD14BY2E104J	Carbon	100kΩ	±5%	1/4W	
		SEMICONDUCTOR				
Qp1		Transistor	2SC1416 (GR)			
Qp2, 3		Transistor	2SC1451 (B) or (GR)			
Dp1 ~ 4		Diode	U05C			
Dp5 ~ 8		Diode	1S2076A			
Dp9		Diode	V06B			
Dp10		Diode	1S2076A			
		COIL				
Lp1, 2	L39-0055-15	Phase compensation coil				
		RELAY				
RLp1, 2	S51-4027-05	Relay (DC 24V 4 pole)				
RLp3	S51-2030-05	Relay (DC 48V 2 pole)				
		MISCELLANEOUS				
–	E19-0203-05	Pin assembly (2P) x 3				
–	E19-0302-05	Pin assembly (3P) x 3				
–	E19-0401-05	Pin assembly (4P) x 2				
–	E19-0503-05	Pin assembly (5P) x 2				(X13-1710-10)
–	E19-0503-05	Pin assembly (5P) x 3				(X13-1710-11)
–	E19-0601-05	Pin assembly (6P)				
–	J21-1236-04	PC board mounting hardware (B) (L)				
–	J21-1237-04	PC board mounting hardware (B) (R)				



S3	S42-4004-05	Pushbutton (METER RANGE)	
		MISCELLANEOUS	
–	E19-0401-05	Pin assembly (4P) x 2	
–	J21-1238-04	PC board mounting hardware (C) (L)	
–	J21-1239-04	PC board mounting hardware (C) (R)	



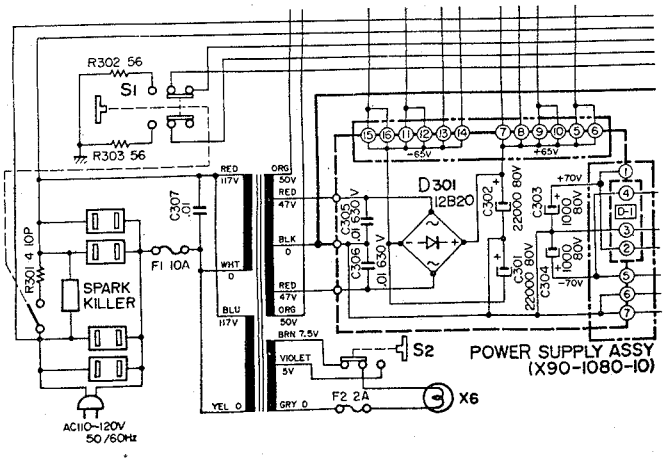
2. **Zener diode De1** is used for regulated supply voltage for the differential amplifier and the sub-sonic filter.
3. **The differential amplifier** improves the DC stability. Input signal is connected to the base of Qe1 and the base of Qe2 is connected with an NFB circuit.
4. **Diodes De2 and De3** do not function in normal conditions. If the load is short-circuited, a overcurrent will flow into driver transistor Qe4, thus damaging it without any protective means. These diodes apply limiter voltage to the base voltage of Qe3 for protection.
5. **The emitter follower** circuit decreases the load impedance for the differential amplifier. It also increases the gain by impedance conversion which is effected for input impedance matching of Qe4.
6. **Zener diode De5** is used for the voltage regulator for the sub-sonic filter.
7. **Class A driver stage**
8. **The limiter stage** is a protection circuit which lowers the bias when overcurrent flows into the final stage due to short-circuit in the load circuit.
9. **The complementary stage** contains the 2 stages of NPN and PNP complementary circuits.

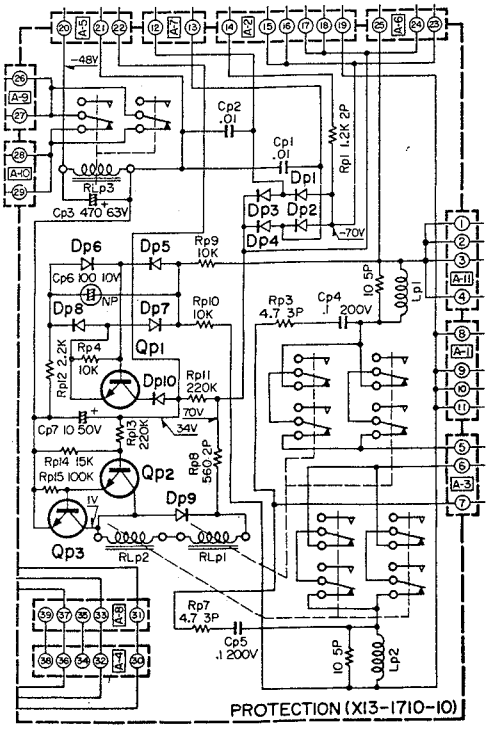
10. Like the complementary stage, **the final stage** contains the NPN and PNP circuits. Three final stages are connected in parallel.

CIRCUIT DESCRIPTION/ADJUSTMENT

11. **The output coil** is used for high-frequency phase compensation for the capacitive load, etc.
12. **Diodes Dp5 ~ 8** for DC voltage detection.
13. **Diodes Dp10** for the improvement of ON-OFF characteristics for the detecting transistors.
14. Overcurrent flows into the **AC power relay RLp3** when the power switch is set to ON. Therefore, switch malfunction, transformer beat, etc. may not occur. Such transient overcurrent is prevented by inserting a 4 Ω resistor in the power circuit. This resistor is short-circuited by the relay since then.

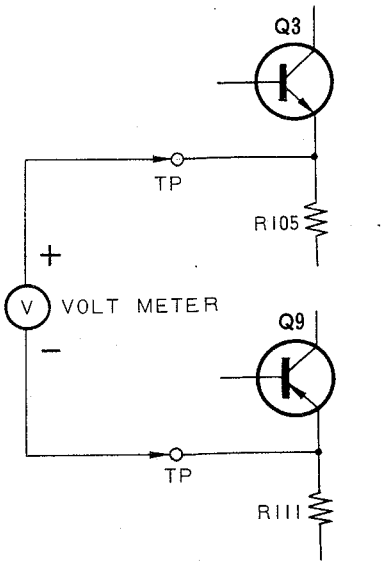
15. In order to release the power and protection relays when the **power switch** is set to OFF, the power circuit is interlocked with this switch and grounded through a resistor.
16. **Lamp illumination change-over switch**





Cautions:

Use a non-inductive dummy load for output measurement. Other types of loads may increase the distortion factor.
Carefully select the capacity of the dummy since this unit is a high-output amplifier (170 W, 36.8 V / 8 Ω).
Carefully examine the input levels since this unit is a high-output amplifier. Full-power driving at 20 kHz or higher may damage the final stage.



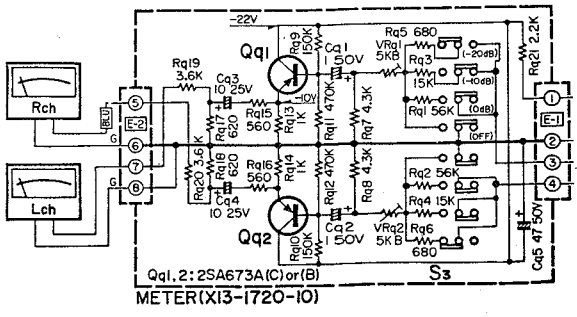
BIAS CURRENT ADJUSTMENT

As described previously, the three final transistors are connected in parallel. Every transistor requires an bias current of 50 mA.

1. Connect a DC voltmeter to point TP.
2. Turn pc trimmer potentiometer VRe1 until 0.05V is obtained.
3. Adjust other channel in the same.

VU METER ADJUSTMENT

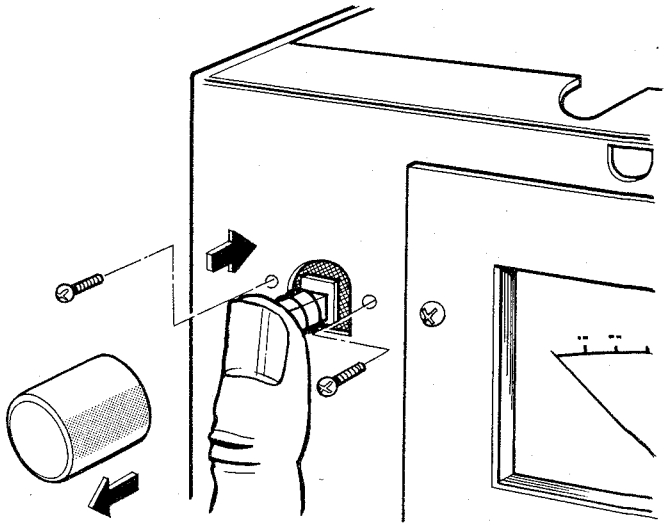
1. Connect AG to the input terminal, and an 8 Ω dummy to the output terminal.
2. Adjust AG output to 3.68V at the load.
3. Push METER RANGE button of −20 dB.
4. Turn pc trimmer potentiometer VRq1 to 0VU.
5. Adjust other channel in the same.



REPLACEMENT OF PARTS

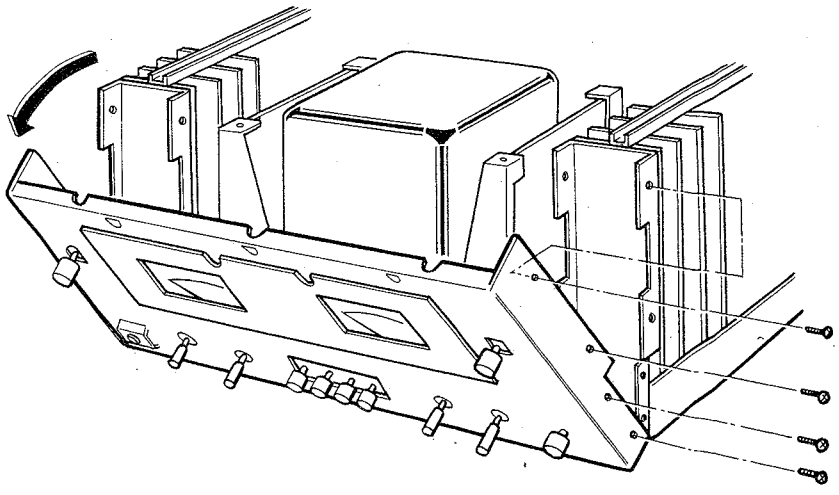
REPLACEMENT OF THE POWER SWITCH

As shown in the exploded view (Page 6), dismantle the panel and the case. Pull out the knob and remove lead connections. Then remove 2 screws fixing the switch. The switch can be taken out by pushing it slantwise. If this process is difficult to do, dismantle the sub-panel also.



REPLACEMENT OF THE FILTER AND THE METER UNIT

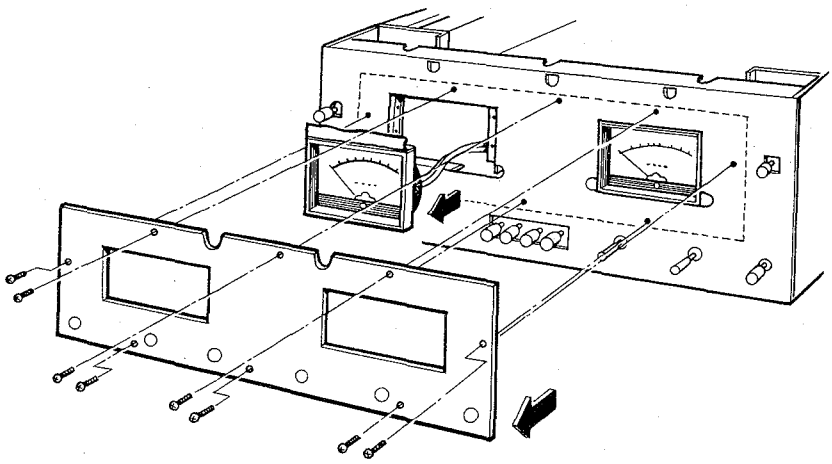
The sub-panel is fixed by 4 screws on the side. When these screws are removed, the sub-panel falls down toward you and replacement or adjustment of the unit is possible.



REPLACEMENT OF PARTS

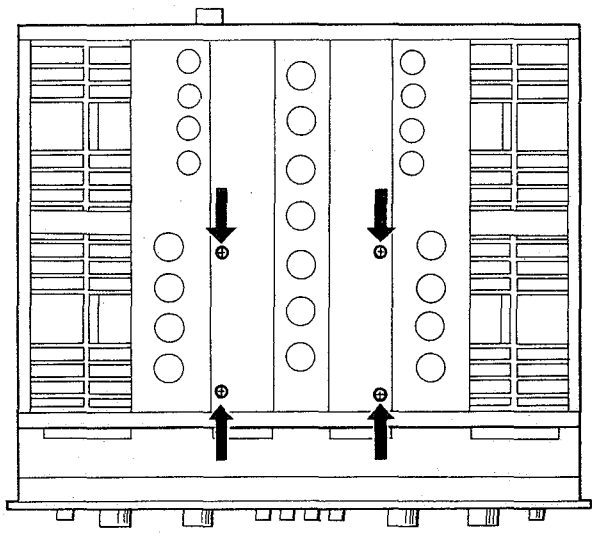
REPLACEMENT OF THE METER

The meter is fixed by the ornamental plate which should, therefore, be dismantled for the replacement of the meter. Be careful this meter will drop forward when the plate is dismantled.

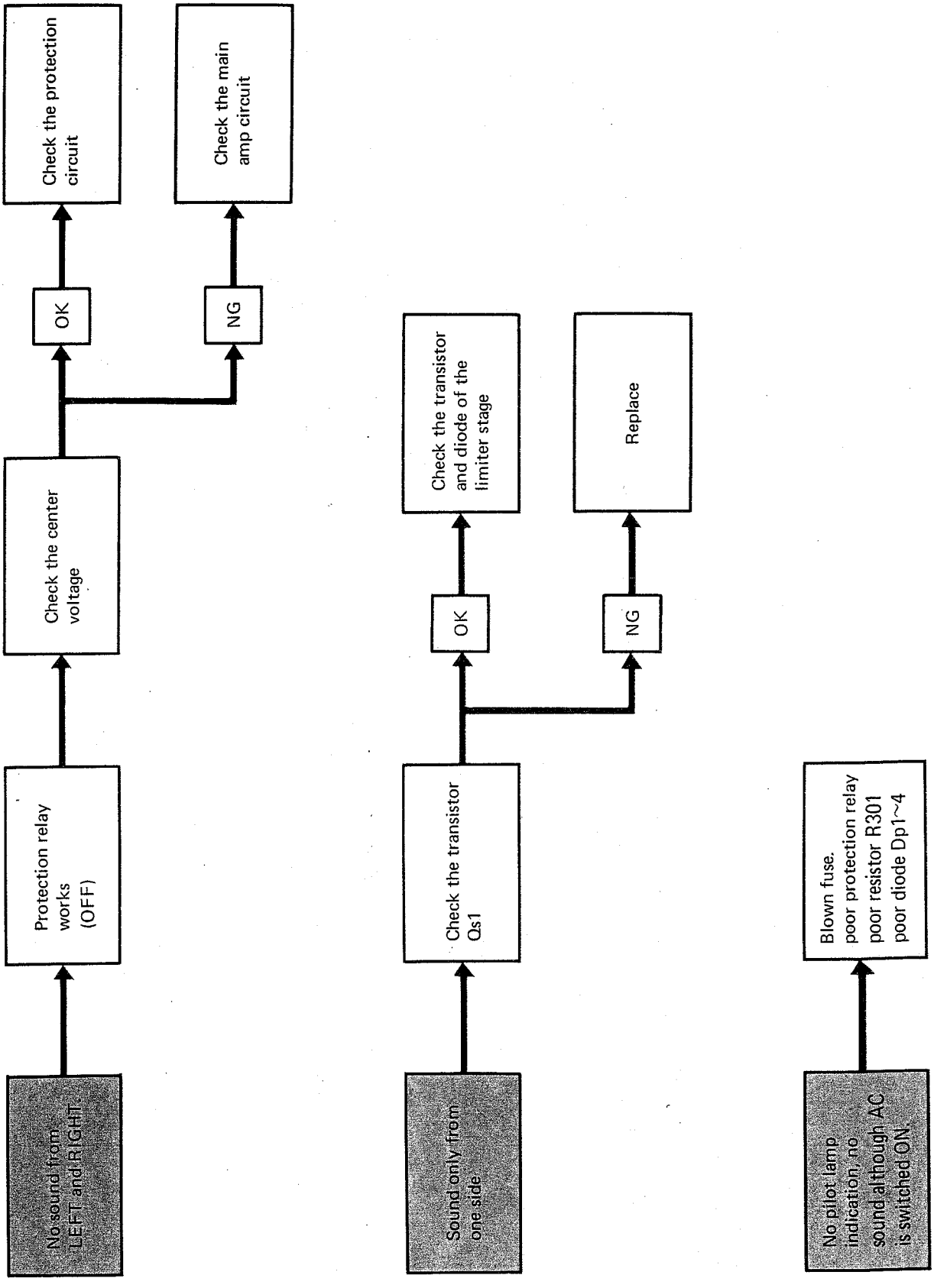


REPLACEMENT OF THE POWER TRANSFORMER

Remove the bottom plate and then 4 screws on the chassis. The power transformer can be dismantled right away. The set should not be laid down, but positioned upside-down for easier replacement.

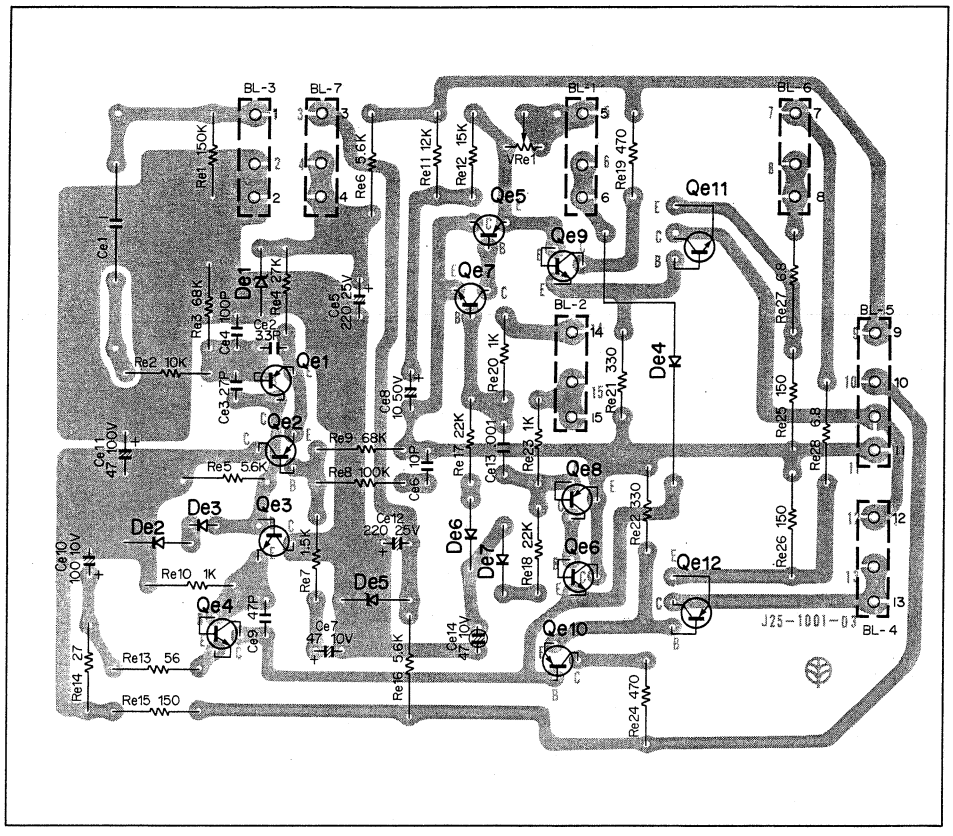


TROUBLESHOOTING



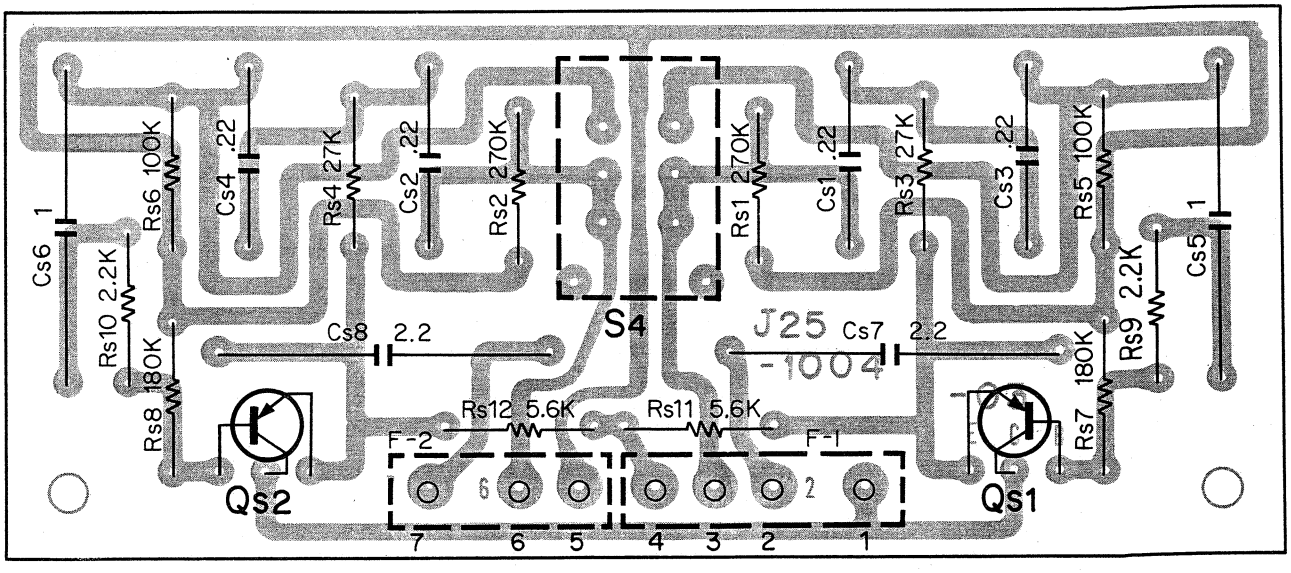
PC BOARD

◀ MAIN
(X07-1260-00)



Qe1, 2 : 2SA620WL5H,
Qe3, 4 : 2SC1452 (G) or (B),
Qe5, 8 : 2SA733 (Q) or (R),
Qe6, 7 : 2SC945 (Q) or (R),
Qe9, 11 : 2SD381 (1) (L) or (M),
Qe10, 12 : 2SB536 (1) (L) or (M),
De1, 5 : YZ-140,
De2, 6, 7 : 1S2076,
De3, 4 : STV-3H (Y)

FILTER
▼ (X12-1060-10)

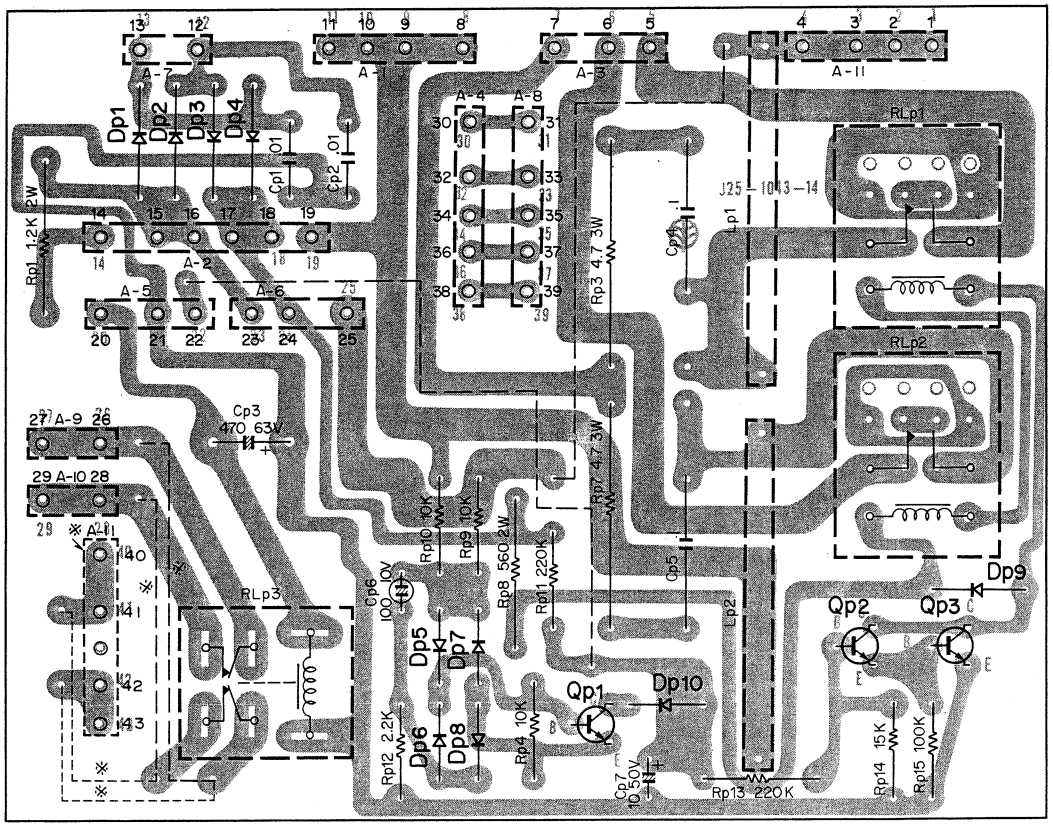


Qs1, 2 : 2SA620WL (5) or (6)

PC BOARD

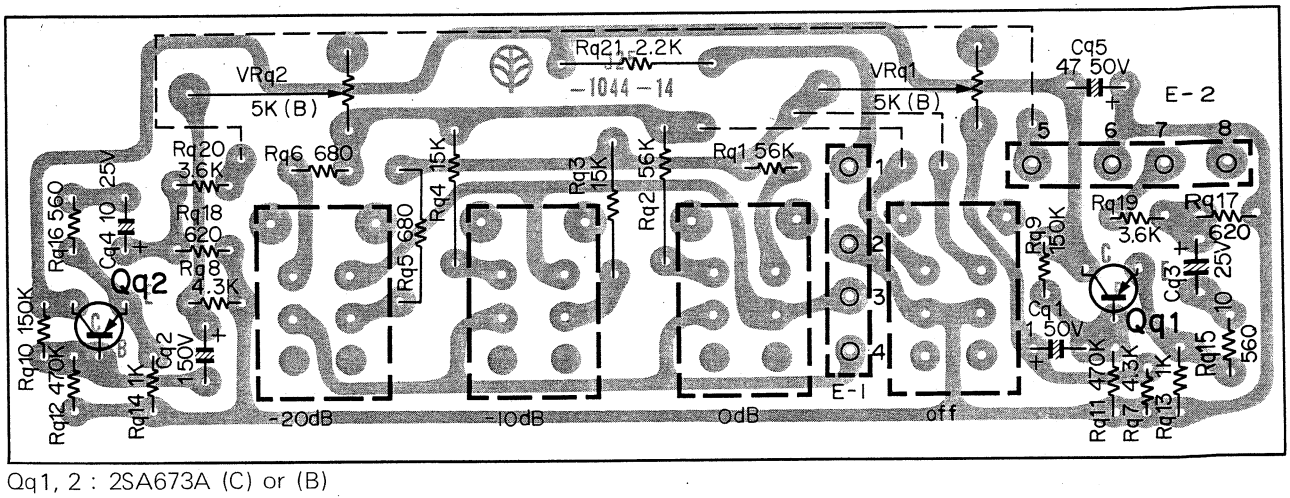
▼ PROTECTION (X13-1710-10)

* mark's connection means X13-1710-11.



Qp1 : 2SC1416 (GR),
Qp2, 3 : 2SC1451 (B) or (G),
Dp1~4 : U05C,
Dp5~8, 10 : 1S2076A,
Dp9 : V06B

▼ METER (X13-1720-10)

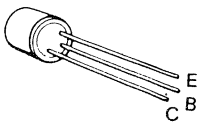


Qq1, 2 : 2SA673A (C) or (B)

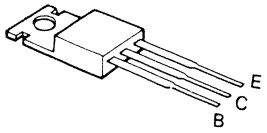
SEMICONDUCTOR SUBSTITUTION/SEMICONDUCTOR LEADS

Semiconductor	Semiconductor substitution
2SD287 (1)	–
2SB539 (1)	–
MAIN AMP (X07-1260-00)	
2SA620WL5 (H)	–
2SA733 (Q) or (R)	2SA620WL (4) or (5)
2SB536 (1) L or M	–
2SC945 (Q) or (R)	2SC1213A (B) or (C)
2SC1452 (G) or (B)	2SC983 (R), (O) or (Y)
2SD381 (1) L or M	–
FILTER (X12-1060-10)	
2SA620WL (5) or (6)	2SA493
PROTECTION (X13-1710-10)	
2SC1416 (GR)	2SC1000 (BL), 2SC1345 (E)
2SC1451 (B) or (GR)	2SC983 (O) or (Y)
METER (X13-1720-10)	
2SA673A (B) or (C)	2SA743 (B) or (C)

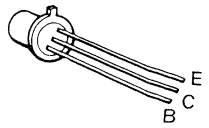
2SC1416



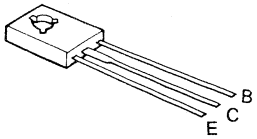
2SB536(1)
2SD381(1)



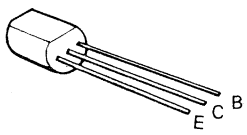
2SA620WL



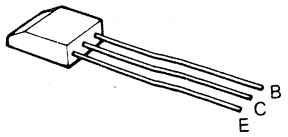
2SA743



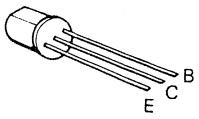
2SA733
2SC945



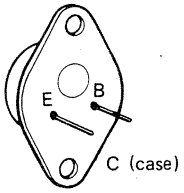
2SC1345



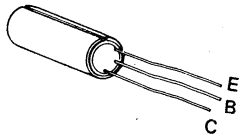
2SA493
2SC1000



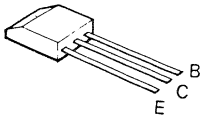
2SB539(1)
2SD287(1)



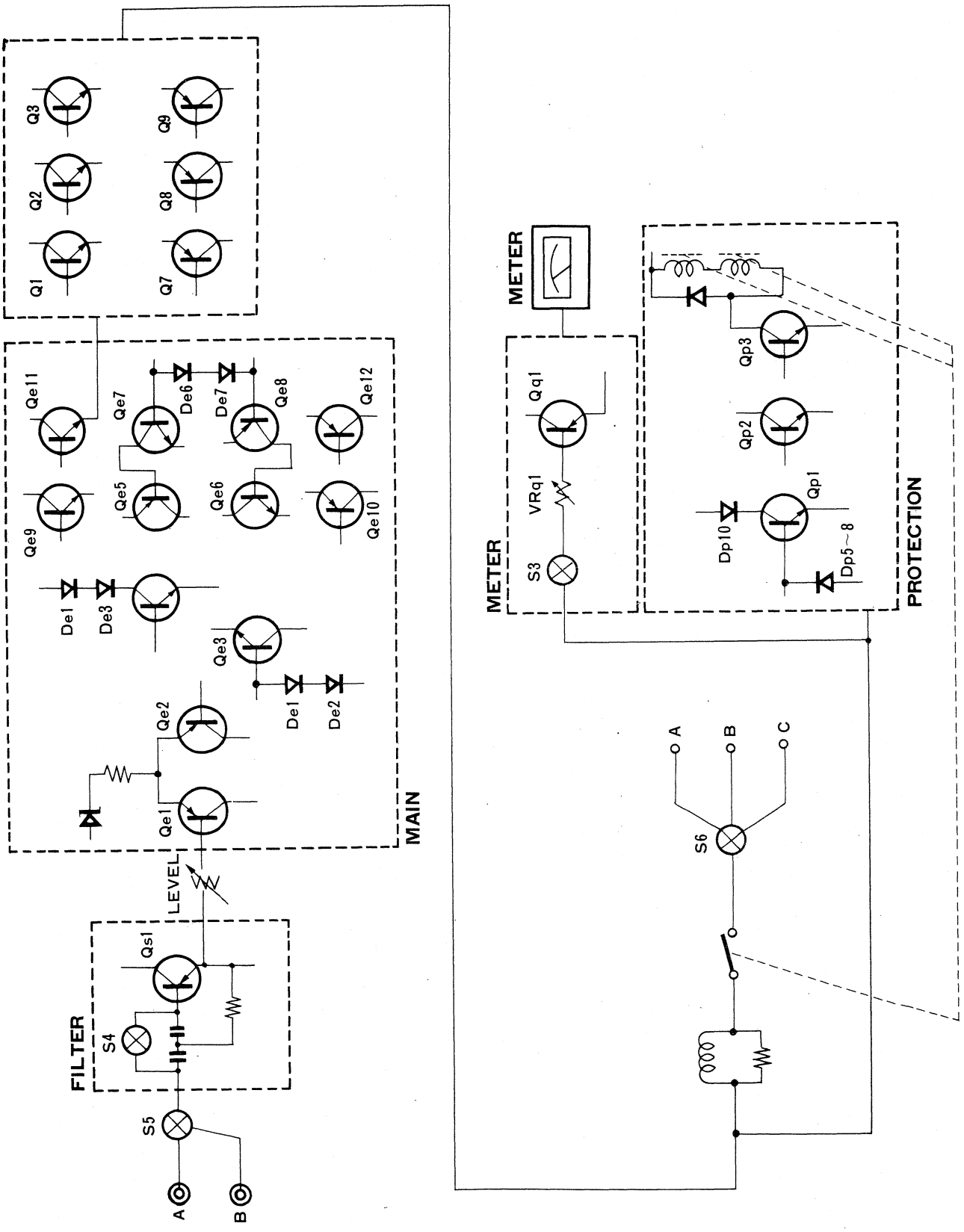
2SC1451
2SC1452



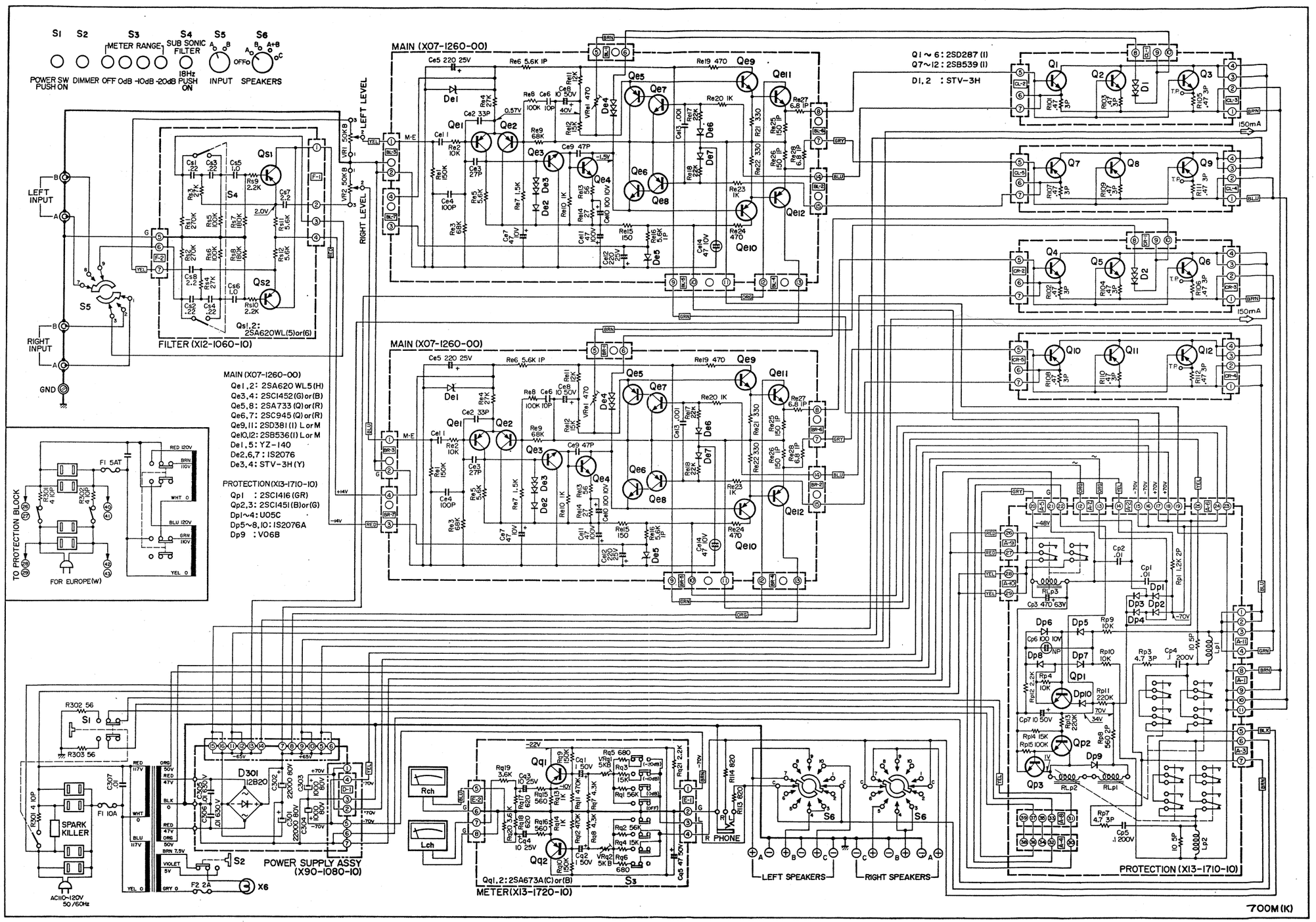
2SA673
2SC983
2SC1213A



BLOCK DIAGRAM



SCHEMATIC DIAGRAM



SPECIFICATIONS

RMS Power Output	
Both Channels Driven	170 watts x 2 into 8 ohms at 20 Hz – 20,000 Hz
	175 watts x 2 into 8 ohms at 1,000 Hz
	220 watts x 2 into 4 ohms at 1,000 Hz
Each Channel Driven	180 watts x 2 into 8 ohms at 1,000 Hz
	250 watts x 2 into 4 ohms at 1,000 Hz
Dynamic Power Output	400 watts into 8 ohms
	620 watts into 4 ohms
Total Harmonic Distortion	0.1% at rated power into 8 ohms
	0.05% at 1/2 rated power into 8 ohms at 1,000 Hz
Intermodulation Distortion	0.1% at rated power into 8 ohms
(60 Hz : 7 kHz = 4 : 1)	0.05% at 1/2 rated power into 8 ohms
Power Bandwidth	5 Hz – 30 kHz
Signal to Noise Ratio	100 dB (short circuited) 115 dB (IHF-A)
50 mW Both Ch. 1 kHz S/N	60 dB/75 dB (IHF-A)
Input Sensitivity/Impedance	1 V, 50 Kohms
Damping Factor	40 at 8 ohms
Frequency Response	20 Hz – 20,000 Hz, +0, –0.2 dB
Subsonic Filter	18 Hz (12 dB/Oct)
Speaker Impedance	Accept 4 ohms to 16 ohms

GENERAL	
Speaker Selector	OFF, A, B, A + B, C
Input Selector	A, B
Function	Input level, Meter range
	Sub-sonic Filter. Dimmer
Others	VU Meter. Phone jack
AC Outlet	Switched 2, Unswitched 2
Power Consumption	1,200 watts at full power
	73 watts at no signal
Dimensions	17-5/16" (440mm) W, 7-7/8" (200mm) H,
	14-3/16" (360mm) D
Weight	59.5 lbs. (27 kg)

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■ 72-02 51ST AVENUE, WOODSIDE. N.Y. 11377 U.S.A.

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■ 3-6-17 AOBADAI, MEGURO-KU, TOKYO, JAPAN.

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